

9-17-08-4982-12-sequence listing.txt
SEQUENCE LISTING

<110> CropDesign N.V.
<120> Stress Tolerance
<130> 4982-12
<140> 10/552,686
<141> 2005-11-21
<150> PCT/EP04/50513
<151> 2004-04-13
<150> EP 03076064.9
<151> 2003-04-11
<160> 11
<170> PatentIn version 3.2

<210> 1
<211> 1344
<212> DNA
<213> Beta vulgaris

<220>
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<222> (3)..(3)
<223> n is a, c, g, or t

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acgatcgtag agtctctgtt ttctactgta taaatctatt caaacaattt tctctctctt 180
attatttcaa ttctcggtttg ctaattccaag gtgaatcaaa tgtcggcaaa tatgttttcc 240
agactttttg gtgctaaatc tcgtgatgca gctactactg agactacttt atctacatta 300
gagaaaattga atgagacact tgaattgcta gagaagaag agcagcttct aatgaaaaag 360
gctactgcag aggttgaaaa ggccaaagag ttcaacaagg caaagaataa acgtgctgct 420
atacaatgtt taagaggaaa aagggttatc gaacagcaag tcgagcaggt tgggaaat 480
caactacgaa ttcatgatca gatcataatg ctgtattctg caaaagcaac gacagagaca 540
gttgctgcat tgagatctgg tgctagtgtc atgaaggcta tgcagaaaagc aacaaacatt 600
gatgatgtgg acaagacaat ggatgagatc aatgagcaga ccgataactt gagacagata 660
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gagcttgaag aacttgaaagg agctgagttg gaggaacaac ttctacaacc atttacaact 780
gccctctacg caccaatcca tgttccagaa ggcaagctgc cagcaaggcc aacaccccaa 840
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tgggggctgt aaactcttgg ttgttttttc gtttttcaat tttttgtttt cgtttttatt 1200
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<210> 2
<211> 224
<212> PRT
<213> Beta vulgaris

<400> 2

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 Ala Ala Thr Thr Glu Thr Thr Leu Ser Thr Leu Glu Lys Leu Asn Glu
 20 25 30
 Thr Leu Glu Met Leu Glu Lys Lys Glu Gln Leu Leu Met Lys Lys Ala
 35 40 45
 Thr Ala Glu Val Glu Lys Ala Lys Glu Phe Thr Arg Ala Lys Asn Lys
 50 55 60
 Arg Ala Ala Ile Gln Cys Leu Lys Arg Lys Arg Leu Tyr Glu Gln Gln
 65 70 75 80
 Val Glu Gln Val Gly Asn Phe Gln Leu Arg Ile His Asp Gln Ile Ile
 85 90 95
 Met Leu Asp Ser Ala Lys Ala Thr Thr Glu Thr Val Ala Ala Leu Arg
 100 105 110
 Ser Gly Ala Ser Ala Met Lys Ala Met Gln Lys Ala Thr Asn Ile Asp
 115 120
 Asp Val Asp Lys Thr Met Asp Glu Ile Asn Glu Gln Thr Asp Asn Leu
 130 135 140
 Arg Gln Ile Gln Glu Ala Leu Ala Thr Pro Val Gly Ala Thr Asp Phe
 145 150 155 160
 Asp Glu Asp Glu Leu Glu Ala Glu Leu Glu Glu Leu Glu Gly Ala Glu
 165 170 175
 Leu Glu Glu Gln Leu Leu Gln Pro Phe Thr Thr Ala Pro Thr Ala Pro
 180 185 190
 Ile His Val Pro Glu Gly Lys Leu Pro Ala Arg Pro Thr Pro Gln Lys
 195 200 205
 Asn Ser Glu Glu Asp Glu Leu Ala Ala Leu Gln Ala Glu Met Ala Leu
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 aaaaatttttc ttccaaaatt catttccact attttcagat atttcatcac taaaatcttc 180
 tcgagtttaac ctaatcactc catttcttatt tcctctcgga aaaaaaccta atcaatcaac 240
 tttacgcggt ttcatctccc gatctttttc gtttctctgt aattttttag cgtaccacca 300
 ttttctgttaa atatgtttac aagggttttc ggtaaaccta aggaaggaaac aacgagtgtct 360
 gttgcaacgt tagacaaatt gagtgaagaca ctgaaaatgt tggaaaaaaa agaacagggtg 420
 cttttgaaga aggctgggtc tgaggttgaa aaggccaagg agttcactag agcaaaagaa 480
 aaacgtgtcgt ctataacttg tctgaagagg aagggtctat acgaacaaca aatagagcag 540
 cttggaaca tgcagttgcg aattcatgat cagatgatac tgcttgaagg ggcaaaaggca 600

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acaacagaga	ctgtcgatgc	attgaggtct	ggtgcctcgg	ctatgaaggc	catgcaaaaag	660
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ttaaaacaaa	tacaggaagc	tcctctctgct	ccaatcgggtg	cagcagctga	cttttgatga	780
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cagcccgagct	actactgctc	ctgctgcacc	agtgcattgct	cctgctggaa	aacaacctga	900
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gagatggccc	ctgtaaaaag	tttttctgga	ctggaaataca	ggagtgggtc	ttacatcaaa	1020
gtagctgtat	aataagctaa	ttattattgc	tttgggtacc	acccttacag	gcacgtatta	1080
ccaatcacg	gatatttggg	aataaaaatgt	gctgtgtagg	ttgcgtgatg	ttgttgatta	1140
ggccgtagtt	ctcctttgtc	cagggtcttga	ttgcacctta	ttctcgatgt	aaatttcaga	1200
ttctcttata	gcattgttaa	tttgtgacaa	aatatcgatc	atttgggtacg	agtttaacctt	1260
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aaaaaaaaa	aactcgaggg	g				1341

<210> 4
 <211> 154
 <212> PRT

<213> Beta vulgaris

<400> 4
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 Lys Glu Gln Val Leu Leu Lys Lys Ala Gly Ala Glu Val Glu Lys Ala
 35 40 45
 Lys Glu Phe Thr Arg Ala Lys Asn Lys Arg Ala Ala Ile Thr Cys Leu
 50 55 60
 Lys Arg Lys Arg Leu Tyr Glu Gln Gln Ile Glu Gln Leu Gly Asn Met
 65 70 75 80
 Gln Leu Arg Ile His Asp Gln Met Ile Leu Leu Glu Gly Ala Lys Ala
 85 90 95
 Thr Thr Glu Thr Val Asp Ala Leu Arg Ser Gly Ala Ser Ala Met Lys
 100 105 110
 Ala Met Gln Lys Ala Thr Asn Ile Asp Asn Val Asp Lys Thr Met Asp
 115 120 125
 Glu Ile Asn Glu Gln Thr Glu Asn Leu Lys Gln Ile Gln Glu Ala Leu
 130 135 140
 Ser Ala Pro Ile Gly Ala Ala Ala Asp Phe
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<210> 5
 <211> 1019
 <212> DNA
 <213> Beta vulgaris

<220>
 <221> misc_feature
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 <223> n is a, c, g, or t

<220>
 <221> misc_feature

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<222> (1001)..(1001)

<223> n is a, c, g, or t

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cgtcaatctc  gaaagtgcga gaaagaagaa aaagctgaga aactcaaaagt caagaaagca      180
atcgagaaag  gaaacatgga tggagctcga atttacgcgcg aaaaacgcgaat tcgtaagcgt      240
actgaacaga  tgaactactt gcgcctcgcct tctcgcctcg acgcgcgtcgt ttcgcgcctc      300
gatactcaag  ctaagatgca aaccatcgcga aaatcgatgg gatcaattgt taatacgcctt      360
gagtcgtctt  tgaatatccgg taatttgcag aagatgtcgg agacaatgga caattttgag      420
aagcaatttg  ttaatatgga agttcaggct gagtttatgg agagttctat ggctggggagt      480
acttcgcttt  cgactcccga aaccgaggtt aatagtttga tgcagcaggt ggccgatgat      540
tatggccttg  aggtttctgt gggtttgctt caggctgctg gacatgctat tcctgttccg      600
aaggcgccgg  agaaggttga tgaggatgat cttaccagga ggctcgccga gctcaaggct      660
cgagggttga  gtcaaaaggtg aaaaggttaa ggttttatgt ataattgtgt atagattatg      720
agctttactg  atgatcaacc ctctcgata tggggggttg atgataattt gctctatatt      780
atggagattt  ggagcttttg gaaccgataa ctgtggatgg ttaattatgt tattatattg      840
tatttgtcta  ttggaaaaaaa aaaaactcga gggggggccg gtaccaagat      900
ggcctttggt  gggttgaaga aggaaaaaga cagaaacgac ttaattacct acttgaaaaa      960
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<210> 6

<211> 204

<212> PRT

<213> Beta vulgaris

<400> 6

Met Gly Asn Thr Glu Lys Leu Met Asn Gln Ile Met Glu Leu Lys Phe
1 5 10 15

Thr Ser Lys Ser Leu Gln Arg Gln Ser Arg Lys Cys Glu Lys Glu Glu
20 25 30

Lys Ala Glu Lys Leu Lys Val Lys Lys Ala Ile Glu Lys Gly Asn Met
35 40 45

Asp Gly Ala Arg Ile Tyr Ala Glu Asn Ala Ile Arg Lys Arg Thr Glu
50 55 60

Gln Met Asn Tyr Leu Arg Leu Ala Ser Arg Leu Asp Ala Val Val Ser
65 70 75 80

Arg Leu Asp Thr Gln Ala Lys Met Gln Thr Ile Gly Lys Ser Met Gly
85 90 95

Ser Ile Val Lys Ser Leu Glu Ser Ser Leu Asn Thr Gly Asn Leu Gln
100 105 110

Lys Met Ser Glu Thr Met Asp Asn Phe Glu Lys Gln Phe Val Asn Met
115 120 125

Glu Val Gln Ala Glu Phe Met Glu Ser Ser Met Ala Gly Ser Thr Ser
130 135 140

Leu Ser Thr Pro Glu Thr Glu Val Asn Ser Leu Met Gln Gln Val Ala
145 150 155 160

Asp Asp Tyr Gly Leu Glu Val Ser Val Gly Leu Pro Gln Ala Ala Gly
165 170 175

His Ala Ile Pro Val Pro Lys Ala Ala Glu Lys Val Asp Glu Asp Asp
180 185 190

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Leu Thr Arg Arg Leu Ala Glu Leu Lys Ala Arg Gly
195 200

<210> 7
<211> 1510
<212> DNA
<213> Beta vulgaris

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ccagtagccg agaaaaccagc tgagaagcca gctgagaagg cagttctacc acctgaagct 180
gagaaaattg ctgcagctga atcagctgaa gccgagaagc cagctgattc agccgaggct 240
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gaagagaaga aagaggaaca acctccatcc accacctcca ccaccaccac caccaccacc 480
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gagattctcc aggataatta ccagaaattt gctgctaacc agttgtgat caatgtttca 1320
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<210> 8
<211> 427
<212> PRT
<213> Beta vulgaris

<400> 8
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Val Pro Val Ala Glu Lys Pro Ala Glu Lys Pro Ala Glu Lys Ala Val
20 25 30
Leu Pro Pro Glu Ala Glu Lys Leu Ala Ala Ala Glu Ser Ala Glu Ala
35 40 45
Glu Lys Pro Ala Asp Ser Ala Glu Ala Lys Ile Ala Gln Gln Val Ser
50 55 60
Phe Lys Glu Glu Thr Asn Val Ala Ser Glu Leu Pro Glu Leu His Arg
65 70 75 80

9-17-08-4982-12-sequence listing.txt

Lys Ala Leu Glu Asp₈₅ Leu Lys Lys Leu Ile₉₀ Gln Glu Ala Leu Glu₉₅ Lys
 His Glu Phe Ser₁₀₀ Ser Pro Pro Pro₁₀₅ Pro Pro Pro Pro Ala₁₁₀ Pro Ala Lys
 Val Glu Glu₁₁₅ Lys Ala Glu Glu Lys₁₂₀ Lys Glu Glu Gln Pro₁₂₅ Pro Ser Thr
 Thr Ser₁₃₀ Thr Thr Thr Thr₁₃₅ Thr Thr Thr Ala Val Ser₁₄₀ Asp Glu Val Ala
 Val₁₄₅ Ala Pro Pro Ser₁₅₀ Glu Glu Ala Pro Lys Thr₁₅₅ Asp Glu Ala Ser Pro₁₆₀
 Lys Val Glu Glu₁₆₅ Glu Pro Ala Lys Ile₁₇₀ Val Glu Gln Pro Pro Thr Thr₁₇₅
 Pro Ala Glu Glu₁₈₀ Pro Glu Pro Ala Lys₁₈₅ Thr Pro Glu Val Val₁₉₀ Val Ala
 Glu Glu Glu₁₉₅ Lys Thr Gly Glu Asp₂₀₀ Ile Lys Glu Thr Ile₂₀₅ Val Val Glu
 Val₂₁₀ Ala Thr Thr Thr Ala₂₁₅ Ala Pro Val Leu Thr Glu₂₂₀ Pro Glu Ser Val
 Glu₂₂₅ Glu Thr Pro Lys Glu₂₃₀ Ala Glu Val Val₂₃₅ Val Glu Glu Ser Pro Lys₂₄₀
 Glu Pro Glu Glu₂₄₅ Val Ser Ile Trp Gly Ile₂₅₀ Pro Leu Leu Ala Asp₂₅₅ Glu
 Arg Ser Asp Val₂₆₀ Ile Leu Leu Lys Phe₂₆₅ Leu Arg Ala Arg Asp₂₇₀ Tyr Arg
 Val Lys Asp₂₇₅ Ala Phe Thr Met Ile₂₈₀ Arg Asn Thr Ala Arg₂₈₅ Trp Arg Lys
 Glu Phe Glu Val Asp Ser₂₉₅ Leu Leu Asp Glu Asp₃₀₀ Leu Gly Asn Asp Tyr
 Glu₃₀₅ Lys Val Val Phe Thr₃₁₀ His Gly Val Asp Lys₃₁₅ Gln Gly Arg Pro Val₃₂₀
 Cys Tyr Asn Val₃₂₅ Phe Gly Glu Phe Gln Asn₃₃₀ Lys Glu Leu Tyr Gln Asn₃₃₅
 Thr Phe Ser Asp₃₄₀ Ala Glu Lys Arg Lys₃₄₅ Lys Phe Leu Arg Trp₃₅₀ Leu Ile
 Gln Phe Leu Glu Lys Thr Ile Arg₃₆₀ Thr Leu Asp Phe Ser₃₆₅ Pro Glu Gly
 Ile Asn₃₇₀ Ser Phe Val Leu Val₃₇₅ Asn Asp Leu Lys Asn₃₈₀ Ser Pro Gly Tyr
 Gly₃₈₅ Lys Arg Asp Leu Tyr₃₉₀ Lys Val Ile Asp Lys₃₉₅ Phe Leu Glu Ile Leu₄₀₀
 Gln Asp Asn Tyr Pro₄₀₅ Glu Phe Ala Ala Lys₄₁₀ Gln Leu Cys Ile Asn₄₁₅ Val

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Ser Trp Trp Ser Trp His Thr Thr Gly Ser Ile
420 425

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<210> 9
<211> 2052
<212> DNA
<213> Beta vulgaris

<220>
<221> misc_feature
<222> (2049)..(2049)
<223> n is a, c, g, or t

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ggatgaatat tccaatagaa aatctcttgg tcttctatc tcaggagagag ggccctagcct 180
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agggggggng cg 2052

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<210> 10
<211> 504
<212> PRT
<213> Beta vulgaris

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<400> 10
Met Asp Glu Tyr Ser Asn Arg Lys Ser Ser Gly Leu Ala Ile Ser Arg
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Arg Gly Pro Ser Leu Val Leu Arg Asp Ser Ala Glu Asn Asn Lys Asp
20 25 30

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Arg Asn Val Gln Val Cys Ser Arg Val Gly Cys Gly Ser Lys Leu Asn
35 40 45
Ser Val Lys Asp Ala Lys Val Ser Ser Pro Ser Lys Val Lys Ser Pro
50 55 60
Lys Thr Pro Phe Arg Ser Ser Ala Gln Gly Lys Glu Thr Ile Gly Ser
65 70 75 80
Ser Ser Arg Thr Leu Ala Ser Pro Ser Pro Phe Lys Lys Ser Leu Ser
85 90 95
Asp Arg Lys Lys Lys Leu Pro Ser Asn Leu Asp Thr Asp Ser Glu Met
100 105 110
Cys Ser Leu Gln Asp Glu Ser Glu Glu Val Ser Gly Lys Thr Arg Ile
115 120 125
Arg Val Gln Pro Glu Pro Glu Asp His Asp Ser Ile Glu Ala Ser Ser
130 135 140
Ser Glu Ala Gly Ser Ser Ser Ser Gly Pro Ser Asn Arg Leu Ala Asn
145 150 155 160
Arg Asn Thr Gln Arg Phe Gly Leu Gly Arg Gln Asp Ser Ala Ala Ser
165 170 175
Ser Ala Ser Phe Ser Leu Asn Lys Thr Asn Gln Gly Gln Arg Asn Gly
180 185 190
Gly Gly Gly Gly Ala Ser Ala Asn Arg Tyr Asn Leu Arg Gln Leu Lys
195 200 205
Cys Asn Ser Ile Ser Asp Val Val Pro Ser Gly Ser Pro Gln Ser Ala
210 215 220
Glu Ser Ser Leu Ser Lys Lys Arg Asp Thr Gly Cys Arg Lys Arg Asn
225 230 235 240
Gly Glu Ala Glu Ser Ser Leu Pro Val Arg Gly Lys Lys Ile Asn Gly
245 250 255
Ala Thr Gln Asp Asp Arg Arg Asn Asp Tyr Pro Asn Arg Gly Ile Ser
260 265 270
Ile Ser Asp Thr Arg Arg Thr Arg Ser Ser Ser Pro Gly Asn Asn Asp
275 280 285
Val Thr Ser Val Arg Ser Arg Arg Ser Val Ala Arg Thr Arg Leu Ser
290 295 300
Asn Gln Asp Thr Arg Asp Arg Leu Pro Leu Val Glu Ser Pro Leu Arg
305 310 315 320
Asn Pro Ser Ser Pro Leu Pro Glu Ser Ser Thr Gly Gly Thr Asp Phe
325 330 335
Ser Leu Glu Asn Gln Phe Ser Gly Arg Thr Pro Ala Gly Ser Leu Ser
340 345 350
Ser Tyr Asn Arg Pro Gly Gly Gly Ser Glu His Met Arg Pro Ser Arg
355 360 365

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Ser Ile Asp Pro Tyr Glu Ala Gly Ile Ala Arg Ser Phe Met Asn Arg
370 375 380

Asp Thr Leu Arg Gln Tyr Asn Leu Asp Gly Ile Ala Glu Met Leu Leu
385 390 395 400

Ala Leu Glu Arg Ile Glu Gln Glu Glu Asp Pro Thr Tyr Glu Gln Leu
405 410 415

Leu Val Leu Glu Thr Asn Leu Phe Leu Gly Gly Leu Ser Phe His Asp
420 425 430

Gln His Arg Asp Met Arg Leu Asp Ile Asp Asn Met Ser Tyr Glu Glu
435 440 445

Leu Leu Ala Leu Glu Glu Ser Met Gly Thr Val Arg Gln Pro Cys Gln
450 455 460

Lys Met Ile Trp Leu Ser Val Leu Lys Gly Thr Ser Thr Arg Val Leu
465 470 475 480

Gln Ile Val Glu Arg Met Ser Met Ile Ser Asn Ala Ala Tyr Ala Arg
485 490 495

Lys Asn Met Val Ala Gly Lys Lys
500

<210> 11

<211> 27

<212> PRT

<213> Beta vulgaris

<400> 11

His Asp Gln His Arg Asp Met Arg Leu Asp Ile Asp Asn Met Ser Tyr Glu
1 5 10 15

Glu Leu Leu Ala Leu Glu Glu Arg Ile Gly
20 25